FORM PTO-1390 (REV. 5-93)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 10677/31

TRANSMITTAL LETTER TO THE UNITED STATES **DESIGNATED/ELECTED OFFICE (DO/EO/US)** **CONCERNING A FILING UNDER 35 U.S.C. 371**	U.S. APPLICATION NO. (If known, see 37 CFR 1.5) **09/646626**

INTERNATIONAL APPLICATION NO. PCT/DE98/03780	INTERNATIONAL FILING DATE (23.12.98) 23 December 1998	PRIORITY DATE CLAIMED (20.03.98) 20 March 1998

TITLE OF INVENTION
OPERATOR BUTTONS AS ACTIVE BUTTONS

APPLICANT(S) FOR DO/EO/US
BAUERFEIND, Dieter

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) immediately rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).

4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))

   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).

   b. ☒ has been transmitted by the International Bureau.

   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)

6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).

7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))

   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).

   b. ☐ have been transmitted by the International Bureau.

   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.

   d. ☒ have not been made and will not be made.

8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).

10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

13. ☒ A **FIRST** preliminary amendment.

   ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.

14. ☐ A substitute specification.

15. ☐ A change of power of attorney and/or address letter.

16. ☒ Other items or information: International Search Report, Preliminary Examination Report.

U.S. APPLICATION NO if known, see 37 C.F.R.1.5 **09/646626**	INTERNATIONAL APPLICATION NO. PCT/DE98/03780	ATTORNEY'S DOCKET NUMBER 10677/31

17. ☒   The following fees are submitted:

		CALCULATIONS	PTO USE ONLY
Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO $840.00			
International preliminary examination fee paid to USPTO (37 CFR 1.482) ... $670.00			
No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) $760.00			
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO $970.00			
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) $96.00			
ENTER APPROPRIATE BASIC FEE AMOUNT =		$840.00	
Surcharge of $130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).		$	

Claims	Number Filed	Number Extra	Rate		
Total Claims	9 - 20 =		X $18.00	$	
Independent Claims	1 - 3 =		X $78.00	$	
Multiple dependent claim(s) (if applicable)			+ $260.00	$	

TOTAL OF ABOVE CALCULATIONS =	$840.00	
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).	$	
SUBTOTAL =	$840.00	
Processing fee of $130.00 for furnishing the English translation later the ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +	$	
TOTAL NATIONAL FEE =	$840.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property +	$	
TOTAL FEES ENCLOSED =	$840.00	

	Amount to be:	
	refunded	$
	charged	$

a. ☐   A check in the amount of $_____ to cover the above fees is enclosed.

b. ☒   Please charge my Deposit Account No. _11-0600_ in the amount of $840.00 to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒   The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. _11-0600_. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

By: _____

RM 35,752

SEND ALL CORRESPONDENCE TO:

_____
SIGNATURE

Kenyon & Kenyon
One Broadway
New York, New York 10004

Richard L. Mayer
NAME

22,490   9/20/00
REGISTRATION NUMBER   DATE

[10677/31]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	BAUERFEIND
SERIAL NO.:	not yet known
FILED:	herewith
TITLE:	OPERATOR BUTTONS AS ACTIVE BUTTONS
ART UNIT:	not yet known
EXAMINER:	not yet known

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Please amend the above-identified application before a first consideration on the merits as follows:

IN THE SPECIFICATION:

On page 1, before line 1, insert --Field of the Invention --.

On page 1, before line 7 insert --Related Technology--.

On page 1, before line 23, insert --Summary of the Invention--.

On page 1, line 23, change "the object" to --an object--.

On page 1, delete lines 27-28.

On page 2, before line 1, insert --The present invention provides a programmable controller having a processing unit, a display screen (6), an operator unit (4, 5) and signal inputs (2) and signal outputs (3), where the processing unit, the display screen (6), the operator unit (4, 5), the signal inputs (2) and signal outputs (3) are accommodated in a common housing (1), and where switching functions can be programmed by the user on the basis of predetermined functions by using a menu-assisted user interface on the display screen (6). A button of the operator unit (4, 5) can be switched to an active button with the aid of a programmable function, such that the sequence of a switching function depends on operation

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of this button.--.

On page 2, line 9, change "equated to" to --equated, i.e., simulated, to--.

On page 2, line 10, delete --i.e., simulated,--.

On page 3, line 10, change "it is also" to --it may also be--.

On page 3, line 12, change "it is" to --it may be--.

On page 3, before line14, insert --<u>Brief Description of the Drawings</u>--.

On page 3, delete lines 14 and 15.

On page 3, before line 16, insert --active buttons is explained in greater detail below with references to the drawings, in which:--.

On page 3, line 17, change "Figure 1:" to --Figure 1 shows--, and change "controller and" to --controller; and--.

On page 3, line 18, change "Figure 2:" to --Figure 2 shows--.

On page 3, before line 20, insert --<u>Detailed Description</u>--.

On page 3, line 20, change "The figure" to --Figure 1--.

On page 3, line 23, change "the processing" to --a processing--.

On page 3, line 25, change "the program" to --a program--.

On page 4, line 3, change "is accompanied" to --can be accompanied--.

IN THE ABSTRACT:

Please amend the Abstract as follows:

Delete lines 3-10.

Before line 3, insert --A programmable controller has a processing unit, a display screen, an operator unit, and signal inputs and signal outputs. The processing unit, the display screen, the operator unit, the signal inputs, and signal outputs are accommodated in a common housing, and switching functions can be programmed by the user on the basis of predetermined functions by using a menu-assisted user interface on the display screen. A button of the operator unit can be switched to an active button by means of a programmable function, such that the sequence of a switching function depends on operation of this button.--.

IN THE CLAIMS:

Please cancel without prejudice original claims 1-9. Please add new claims 10-18 as follows:

10. (new) A programmable controller comprising:

a processing unit;

a display screen including a menu-assisted user interface;

an operator unit including a button, the button capable of being switched to an active mode using a programmable function;

at least one signal input;

at least one signal output; and

a housing, the processing unit, the display screen, the operator unit, the at least one signal input and the at least one signal output being disposed in the housing;

wherein a switching function of the controller programmable in a programmed sequence according to predetermined functions using the menu-assisted user interface, and wherein an operation of the button is capable of affecting a switching sequence of the switching function when the button is in the active mode.

11. (new) The controller as recited in claim 10 wherein, an operation of the button can simulate the at least one signal input when the button is in the active mode.

12. (new) The controller as recited in claim 11 wherein the programmed sequence of the switching function is interrupted when the button is operated in the active mode.

13. (new) The controller as recited in claim 10 wherein the switching function can be interrupted by operation of the button in the active mode.

14. (new) The controller as recited in claim 10 wherein the operation of the button is performable at any point of the programmable switching function.

15. (new) The controller as recited in claim 10 further comprising a second button capable of affecting the switching function.

16. (new) The controller as recited in claim 10 further comprising a second button and wherein the second button is capable of being switched to an active mode.

17. (new) The controller as recited in claim 10 wherein the display screen is capable of displaying an instruction to operate the active button.

18. (new) The controller as recited in claim 10 wherein the display screen is capable of displaying an instruction to operate the active button and wherein the instruction to operate the active button is accompanied by an acoustic signal.

REMARKS

This Preliminary Amendment cancels original claims 1-9 and adds new claims 10-18. A translation of the International Preliminary Examination Report in the underlying PCT Application No. PCT/DE98/03780 is submitted herewith. The new claims do not add new matter to the application but do conform the claims to U.S. Patent and Trademark Office rules.

The amendments to the specification and abstract are to conform the specification and abstract to U.S. Patent and Trademark Office rules. It is respectfully submitted that the amendments to the specification and abstract do not introduce new matter into the application.
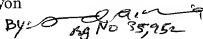
The underlying PCT application also includes an International Search Report, a copy of which is submitted herewith.
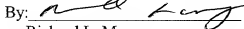
Conclusion

Consideration of the present application as amended is hereby respectfully requested.

Respectfully Submitted,

Kenyon & Kenyon

By: _____
Reg No 35,952

Dated: 9/20/00

By: _____
Richard L. Mayer
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One Broadway
New York, NY 10004
(212) 425-7200

[10677/31]

OPERATOR BUTTONS AS ACTIVE BUTTONS

The present invention relates to a programmable controller having a processing unit, a display screen, an operator unit and signal inputs and signal outputs, where the processing unit, the display screen, the operator unit, the signal inputs and signal outputs are accommodated in a common housing, and where

5   switching functions can be programmed by the user on the basis of predetermined functions by using a menu-assisted user interface on the display screen.

Such controllers are often used as intelligent switch elements in industry, in science and in households. With these controllers, switching sequences between the input voltages applied to the signal inputs and the signal outputs can be programmed

10   in a variety of ways. Internal modules such as counter modules or timer modules and finished functions of an implemented operating system are made available to the user for his programs. The programs are entered either through the menu-assisted interface with the operator buttons present on the controller or they are entered by means of an external computer (PC) connected by a data line.

15   One disadvantage in creating the switching programs is that it is extremely difficult or impossible to test the running of these programs. For example, the required voltages must be applied to the signal inputs for testing in order to trigger the switching sequence and the signal output associated with it. Likewise, it is very difficult to conduct any troubleshooting while the program is running. These

20   programs contribute toward a great uncertainty in operation. Another disadvantage of the known controllers is that once a switching program is running, it can be influenced only through complicated measures or not at all.

Therefore, the object of the present invention is to create a programmable controller that has a great operational reliability and is convenient to use and its

25   switching programs can be tested easily for correct running without requiring any auxiliary means.

This object is achieved by a programmable controller according to the characterizing feature of Claim 1.

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The active button according to the present invention can be used in a variety of ways. It is thus possible with a first especially advantageous embodiment to simulate a signal input by means of the active button. For activation of this button, a function is provided in the operating system so that each of the operator buttons can be declared an active button by means of this function. Operation of the active button defined in this way can then be treated as a logic state instead of an electric input signal within a switching program. Each switching sequence can thus be linked to operation of the active button. The active button functions like an additional input without a terminal.

Since each voltage state at one of the signal inputs can be equated to operation of an active button, i.e., simulated, it is not necessary to have any other auxiliary means such as an independent power supply or sensor for testing a switching program or for troubleshooting. The controller can be programmed and tested at any time without the presence of input voltages. Thus, it can be set up before use at the subsequent site of use. It thus becomes especially simple and convenient to set up switching programs in the programmable controller.

The convenient option of replacing the input signals makes this programmable controller reliable and thus inexpensive for the user because of the low expenditures for repairs and maintenance.

The active buttons can be activated and deactivated in the system parameters of the controller. The initial state is "deactivated." If the buttons are active, they can be used during the program sequence and in the status menu.

In another advantageous embodiment, the active button is set so that when it is operated, a program being run is influenced. In this function as an interrupt, for example, the active button can be used in the manner of an emergency off in a program. To do so, the active button is set at an interrupt of the microcontroller present in the controller or its status is queried in cycles within the switching program. Just as in the first embodiment, the sequence of a switching function thus depends on operation of the active button.

Another possible application of the active button is to provide manual control, bypassing the program sequence, within a switching program. For example, it is possible to use the controller as an automatic timer for roller blinds and nevertheless make it possible for manual control to override the automatic timer by using the active

buttons.

The function for activating and deactivating a button is advantageously designed so that the active button can be used anywhere in the programmable switching function. Thus, a flexible use option and thus an especially great operating convenience are guaranteed. To simulate multiple signal inputs, it is advantageous to use a corresponding number of active buttons within a programmable switching function. The number of active buttons used at the same time is limited only to the number of operator buttons on the controller, each of which can be switched as an active button.

It is also advantageous to display the instruction to operate an active button on the display screen. This informs the user of the operating steps required. To notify the user that input is needed, it is advantageous to combine the instruction to operate the active button with an acoustic signal.

An embodiment of the controller according to the present invention having active buttons is illustrated in Figures 1 and 2 and is explained in greater detail below; they show:

Figure 1:   a programmable controller and

Figure 2:   an example of using an active button.

The figure shows a programmable controller having a housing 1 and a row of voltage inputs 2 (I) and voltage outputs 3 (O). The programmed controller switches the current flow between inputs 2 and outputs 3 under the control of a program. The program can be entered into the processing unit accommodated in housing 1 by means of operator buttons 4 and multifunction button 5. Each of operator buttons 4 and multifunction button 5 can be defined as an active button. Input and the program sequence can be observed on display screen 6. The requirement to operate an active button in a field 11 is displayed on display screen 6. Otherwise, a menu-assisted user interface is displayed on display screen 6 during programming. The controller can be programmed by an external computer (PC) by means of an interface 7.

Figure 2 shows an example of using an active button. Signal inputs 8 and 9 are wired so that a signal (I) must be applied to input 8 and there must be no signal applied to input 9 (I) in order to obtain an output signal at signal output 10. The

condition for applying the signal to output 10 is operation of operator button 12 (P1), which is also displayed in field 11 on display screen 6 (Figure 1). Appearance of the instruction to make an entry is accompanied by an audible signal 13.

Claims

1.   A programmable controller having a processing unit, a display screen (6), an operator unit (4, 5) and signal inputs (2) and signal outputs (3), where the processing unit, the display screen (6), the operator unit (4, 5), the signal inputs (2) and signal outputs (3) are accommodated in a common housing (1), and where switching functions can be programmed by the user on the basis of predetermined functions by using a menu-assisted user interface on the display screen (6), characterized in that a button of the operator unit (4, 5) can be switched to an active button with the aid of a programmable function, such that the sequence of a switching function depends on operation of this button.

2.   The controller according to Claim 1, characterized in that a signal input (2) can be simulated with the active button.

3.   The controller according to Claim 2, characterized in that the sequence of a switching function is interrupted as long as the active button is operated by a user.

4.   The controller according to one of the preceding claims, characterized in that the switching function can be interrupted by operation of the active button.

5.   The controller according to one of the preceding claims, characterized in that the active button can be used anywhere in the programmable switching function.

6.   The controller according to one of the preceding claims, characterized in that a plurality of active buttons can be used within one programmable switching function.

7.   The controller according to one of the preceding claims, characterized in that each of the buttons belonging to the operator unit can be switched as an active button.

8.   The controller according to one of the preceding claims, characterized in that

the instruction to operate (11) the active button can be displayed on the display screen.

9.   The controller according to one of the preceding claims, characterized in that
the instruction to operate the active button is accompanied by an acoustic signal (13).

Abstract

The invention relates to a programmable controller, comprising an arithmetic unit, a
screen (6), an operator unit (4,5), signal inputs (2) and signal outputs (3). Said

5   arithmetic unit, screen (6), operator unit (4,5), signal inputs (2) and signal outputs (3)
are accommodated in a common housing (1). Switching functions can be
programmed by the user using a menue-assisted user interface on the screen (6) and
on the basis of pre-set functions. A button of the operator unit (4,5) can be switched
to an active button by a programmable function. The operation of a switching

10   function then depends on the activation of this button.
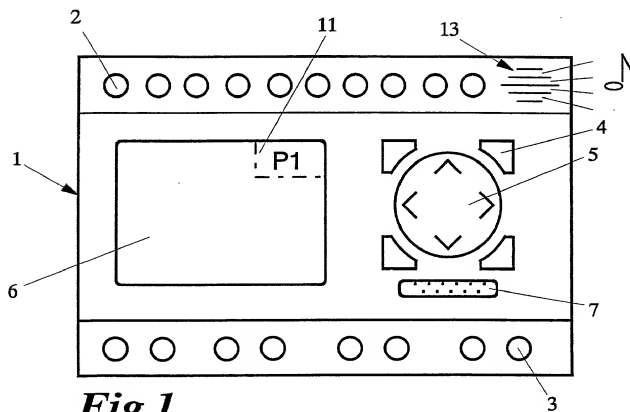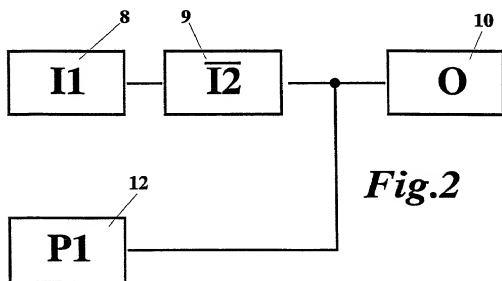
Fig.1

Fig.2

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first, and sole inventor of the subject matter that is claimed and for which a patent is sought on the invention entitled **OPERATOR BUTTONS AS ACTIVE BUTTONS,** the specification of which was filed as International Application **PCT/DE98/03780** on **23 December 1998**.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

PRIOR FOREIGN APPLICATION(S)

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	DATE OF ISSUE (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. § 119
Germany	198 12 423.6	20 March 1998		YES

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys:
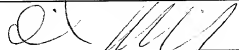Richard L. Mayer (Reg. No. 22,490)
Erik R. Swanson (Reg. No. 40,833)

SEND CORRESPONDENCE, AND DIRECT TELEPHONE CALLS TO:
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I declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issuing thereon.

FULL NAME OF INVENTOR	FAMILY NAME **BAUERFEIND**	FIRST GIVEN NAME **Dieter**	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY & ZIP CODE **D-53177 Bonn**	STATE OR FOREIGN COUNTRY DE **Germany**	COUNTRY OF CITIZENSHIP **Germany**
POST OFFICE ADDRESS	POST OFFICE ADDRESS **Kurfuerstenallee 26**	CITY & ZIP CODE **D-53177 Bonn**	STATE OR FOREIGN COUNTRY **Germany**
Signature		Date	22. 08. 00